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General Services Administration
National Capital Region
Washington, DC 20407



December 11, 1985

Smith, Hinchman & Grylls Associates, Inc.
455 West Fort Street
Detroit, Michigan 48226

Subject: Headquarters Expansion Package
GS-11B-19068
R.F. Shield Grounding
Log 1101

Gentlemen:

Reference is made to your letter of December 4, 1985 in connection with the above referenced subject.

In reply thereto please be advised as follows:

1. We agree that if the specified test had not been accomplished before this time it would be impossible to do now. We are, however, confident that the specified tests were made on March 14, 1985, following the caisson installation.
2. We are also in agreement that the Bid Package No. 1 grounding is a critical component of the R.F. shield being installed by Bid Package No. 2 contractor. However, the attached test results by Fischbach and Moore, Job No. 2169, (which must have been performed under the surveillance of my staff) would appear to restore the current integrity-status of the R.F. shielding. The test results would also eliminate the need to remove any of the Bid Package No. 2 contractor's work to do the specified testing.
3. Fischbach and Moore was asked to confirm the test results. Mr. Joseph C. Barbarito assured me that the tests were made and described the three point fall-of-potential method and equipment used.

Accordingly, it would appear to the writer that the ground resistance measurements as required by the specifications were in fact taken and the contract terms complied with. A mechanical (visual) inspection of the 2/0 bare copper cable thermo-welded to the caisson reinforcement was made by the writer. The welded connections were secure.

Smith, Hinchman & Grylls Associates, Inc.
December 11, 1985
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Please advise if more information is required.

Sincerely,



Arthur J. Carlucci
Project Manager
Headquarters Expansion Project

AJC:pb

cc: Gary Lee
Sam Bryson
Andy Mitro

Attachment

FISCHBACH & MOORE 2169

14 March 85 -- No standing water in caisson holes. Earth will not form ball. Multi-readings taken from each test electrode set up.

<u>Col. #</u>	<u>Ohm</u>	<u>Col. #</u>	<u>Ohm</u>	<u>Col. #</u>	<u>Ohm</u>
1-K	3.4	8-K	4.6	18-K	7.8
1-J	3.0	8-B	5.2	18-B	5.3
1-H	2.9				
1-G	4.4	9-K	.02	19-K	4.1
1-F	3.7	9-B	3.4	19-B	7.3
1-E	2.6				
		10-K	8.0	20-K	9.4
2-K	3.4	10-J	.08	20-H	9.7
2-D	4.6	10-H	5.3	20-E	8.6
		10-G	1.2	20-B	9.9
3-K	4.2	10-B	6.4		
3-C	6.3			21-K	11.3
		11-C	6.9	21-B	10.1
4-K	.84	11-A-F	2.1	22-K	9.4
4-H	8.0			22-B	8.6
4-E	2.7	12-D	4.2	23-K	7.4
4-B	.63	12-B-F	5.3	23-H	7.3
				23-E	8.7
5-K	1.2	13-D	3.6	24-K	9.6
5-B	3.7			25-K	10.4
		14-D	6.8	25-D	11.2
6-K	.48	14-B-F	7.2	26-K	10.9
6-B	.59	15-B-F	4.9	26-J	11.6
				26-H	12.0
7-K	2.3	16-D	4.2	26-G	11.4
7-H	7.8			26-F	11.8
7-E	4.3	17-K	8.3	26-E	10.8
7-B	6.1	17-J	8.6		
		17-H	6.7		
		17-G	9.4		

5 December 85

SAM:

This is a copy of my notes I made when we tested caissons -- the office can't find the copy sent them -- they will soon send official test results on a form to Hyman, GSA, etc.

Joseph C. Babson
FJM

SECTION 16620 PAGE 2
 DATE 01/11/84 TIME 18.613
 GROUNDING SYSTEM

5H&G 13155 BP-1
 CENTRAL INTELLIGENCE AGENCY
 HEADQUARTERS EXPANSION
 91D PACKAGE 1
 SITE, FOUNDATIONS & PARKING DECK

3 35) THE NEUTRAL POINTS OF TRANSFORMERS SHALL BE SOLIDLY GROUNDED.

2 36) EQUIPMENT GROUND

3 37) EQUIPMENT GROUND BUSES SHALL BE INTERCONNECTED BY A SEPARATE EQUIPMENT GROUND CONDUCTOR.

3 38) EQUIPMENT GROUNDING SHALL BE BY MEANS OF A SEPARATE GROUND CONDUCTOR FROM THE EQUIPMENT GROUND BUS TO THE BASIC GROUNDING SYSTEM.

3 39) WHERE FLEXIBLE STEEL CONDUIT IS USED, AN ADDITIONAL STRANDED CONDUCTOR SHALL BE INSTALLED INSIDE OF THE FLEXIBLE CONDUIT AS A GROUND CONNECTION. THIS CONDUCTOR SHALL BE CONNECTED TO A LOCKING TYPE GROUNDING BUSHING AT EACH END OF THE CONDUIT.

3 40) WHERE FLUORESCENT OR MERCURY LIGHT FIXTURES ARE SUSPENDED BY MEANS OF CONDUIT, OR RODS WITH HOOK FITTINGS, THE FIXTURE SHALL BE GROUNDED WITH A SEPARATE GROUND CONDUCTOR IN THE CORD CONNECTION.

2 41) UNDERGROUND DUCT SYSTEM GROUND

3 42) A NO. 4/0 BARE COPPER GROUND WIRE SHALL BE PROVIDED IN THE UNDERGROUND DUCT SYSTEM. THIS GROUND CONDUCTOR SHALL SERVE AS A GROUND FAULT CURRENT RETURN PATH TO THE PRIMARY SWITCHGEAR.

3 43) A GROUND BUS OF 1/4 INCH BY 3/4 INCH SHALL BE PROVIDED IN EACH POWER MANHOLE. THE DUCT SYSTEM GROUND CONDUCTOR, CABLE SHIELD AT SPLICES AND NON-CURRENT CARRYING METAL EQUIPMENT SHALL BE BONDED TO THIS BUS.

2 44) LUMINAIRE-POLE ASSEMBLY GROUNDING

3 45) NON-CURRENT CARRYING PARTS OF THE POLE AND LUMINAIRE ASSEMBLY SHALL BE GROUNDED. THE INTERNAL EQUIPMENT GROUND CONDUCTOR SHALL BE COPPER AND EQUAL IN SIZE TO THE CIRCUIT EQUIPMENT GROUND CONDUCTOR. THE INTERNAL EQUIPMENT GROUND CONDUCTOR SHALL BE CONNECTED TO THE CIRCUIT EQUIPMENT GROUND CONDUCTOR. IN ADDITION, GROUND CONDUCTORS FOR THE TYPE "SA" AND "SB" POLES SHALL BE CONNECTED TO THE CONCRETE ENCASED EARTH ELECTRODE SYSTEM. THE CONCRETE-ENCASED EARTH ELECTRODES ARE FOR LIGHTNING STRIKES AND ARE NOT INTENDED TO REPLACE THE CONTINUOUS EQUIPMENT GROUND CONDUCTOR TAKEN FROM THE POWER SUPPLY PANELBOARD.

3 46) THE CONCRETE-ENCASED EARTH ELECTRODE SYSTEM FOR THE SITE LIGHTING POLES SHALL CONSIST OF THE REINFORCING STEEL WITHIN THE POLE BASE. THE INDIVIDUAL REINFORCING STEEL BARS SHALL BE EFFECTIVELY MADE ELECTRICALLY CONTINUOUS. A NO. 6 BARE COPPER GROUND WIRE SHALL BE CONNECTED TO THE STEEL REINFORCING AND TERMINATED ON THE POLE GROUNDING LUG HEADQUARTERS EXPANSION EARTH ELECTRODE SYSTEM.

2 47) HEADQUARTERS EXPANSION EARTH ELECTRODE SYSTEM

3 48) A CONCRETE-ENCASED EARTH ELECTRODE SYSTEM FOR FUTURE USE IN THE HEADQUARTERS EXPANSION SHALL BE PROVIDED. THE EARTH ELECTRODE SYSTEM SHALL CONSIST OF THE STEEL REINFORCING BARS IN THE FOUNDATIONS INDICATED. THE STEEL REINFORCING BARS SHALL BE EFFECTIVELY MADE ELECTRICALLY CONTINUOUS AS INDICATED.

1 49) 77) 4. FIELD TESTING

2 50) 78) MECHANICAL INSPECTION

3 51) 79) THE GROUNDING SYSTEM SHALL BE INSPECTED TO DETERMINE THAT WELDED OR BRAZED CONNECTIONS ARE SECURE AND DO NOT PRESENT HIGH RESISTANCE JOINTS. BOLTED CONNECTIONS SHALL BE TESTED WITH A TORQUE WRENCH. MINIMUM TORQUE WRENCH SETTING FOR BOLTS 3/8 INCH DIAMETER AND LARGER SHALL BE 50 FT.-LBS.

2 52) 84) GROUND RESISTANCE MEASUREMENTS

SH&G 13155 BP-1
CENTRAL INTELLIGENCE AGENC.
HEADQUARTERS EXPANSION
BID PACKAGE 1
SITE, FOUNDATIONS & PARKING DECK

SECTION 6620 PAGE 3
DATE 01/11/84 TIME 18.613
GROUNDING SYSTEM

85) GROUND RESISTANCE MEASUREMENTS SHALL BE MADE ON EACH INDIVIDUAL
86) ELECTRODE. THE TESTS SHALL BE PERFORMED BY THE THREE POINT
37) FALL-OFF-POTENTIAL METHOD. GROUND RESISTANCE MEASUREMENTS SHALL BE MADE
88) ONLY IN NORMALLY DRY WEATHER OR NOT LESS THAN 48 HOURS AFTER RAINFALL.
3 89) THE TEST REPORTS SHALL INCLUDE A DESCRIPTION OF THE ELECTRODE TESTED
90) IN CONJUNCTION WITH THE READINGS TAKEN FOR THAT SYSTEM AND, WHERE
91) APPLICABLE, THE SOIL CONDITIONS AT THE TIME THE MEASUREMENTS WERE
92) TAKEN.

***END OF SECTION